

EVOLUTIONARY SOCIAL CONSTRUCTIVISM

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Evolutionary theory has been controversial throughout its history, for reasons that go beyond religious matters. Even among nonbelievers, something momentous and contentious appears to be at stake. The controversy also transcends knowledge of the subject. It has not quieted over the decades, despite tremendous advances in knowledge, and it currently divides the foremost authorities on evolution, as the pages of professional journals and popular intellectual forums such as the New York Review of Books attests.

Among the sophisticates, the controversy does not center on the basic fact of evolution but on certain consequences, such as the importance of natural selection and especially the relevance of evolution to human affairs. The intellectual positions most fiercely opposed to “sociobiology” and “evolutionary psychology” include social constructivism, postmodernism, and deconstructionism. These positions are different from each other but united in their commitment to the idea that individuals and societies have enormous flexibility in what they can become, in contrast to the inflexibility and determinism attributed to evolutionary approaches to human behavior. I will refer to this core idea as social constructivism, with apologies for obscuring the differences between the positions referred to above that are important in other contexts.

These debates usually become so polarized that they reveal the worst aspects of tribalism in our species. Each side regards the other as the enemy whose position has no substance or rational basis, other than being ideologically driven. The middle ground becomes a no man’s land into which no one dares to venture. Given this kind of intellectual trench warfare, it is no wonder that ideas can stagnate for years, decades, and even centuries.

This chapter attempts a more productive exploration of the middle ground. I will try to show that the heart of social constructivism can be given an evolutionary formulation. Social constructivists have more to gain from adopting an evolutionary perspective than by avoiding it, and sociobiologists need to incorporate large elements of social constructivism into their own framework. This is not an exercise in empty diplomacy in which everyone continues to think as they did before (e.g., “all traits reflect

a gene-environment interaction”). Instead, it is an attempt to genuinely occupy the middle ground that requires fundamental movement on both sides.

Why should a chapter on evolutionary social constructivism appear in a book on evolution and literature? One reason is that literary studies have historically been dominated by social constructivist perspectives. Skepticism toward a genre of evolutionary literary studies is fueled by the larger issues, with literature the battle ground rather than the battle. Another reason is that evolutionary social constructivism relies fundamentally upon narrative. The reason that individuals and societies have a capacity for change is largely because of the importance of stories in psychological and cultural evolutionary processes.

Three evolutionary and two social constructivist positions

I will begin by outlining three evolutionary and two social constructivist positions. The evolutionary positions are as follows:

E1. The minds of all organisms are genetically adapted to their ancestral environments. Because there are many adaptive problems to solve, all minds consist of a collection of specialized adaptations rather than a single all-purpose adaptation. Understanding the human mind is complicated by the fact that genetic evolution has not kept pace with the social and environmental changes brought about by the advent of agriculture. We therefore often behave maladaptively in our current environments, much as a rain forest lizard would behave maladaptively when transported into the desert. To understand the human mind and its products, we need to examine their adaptedness in ancestral environments, not modern environments. This is the position most often associated with the term “evolutionary psychology”. When related to literature, a typical hypothesis emanating from this position would be “Sex differences and sexual relationships in literature should reflect adaptive male and female reproductive strategies that evolved in ancestral environments and are part of our human nature.”

E2. There is more to evolution than genetic evolution. Physiological, psychological and cultural processes can also be evolutionary in the sense that alternatives are created and selected on the basis of given criteria. The immune system is a well-known example of a physiological evolutionary process. Antibodies are created at random and those that successfully bind to antigens replicate faster than those that don’t. The late social psychologist Donald Campbell never tired of using the phrase “blind variation and selective retention” to describe the essence of evolution and its relevance to psychological and cultural processes, including the process of scientific inquiry, in addition to genetic evolution. When related to literature, a hypothesis emanating from this position might be “narratives have a powerful effect on human behavior and adaptation to current environments proceeds in part through the creation and selection of alternative narratives.”

E3. There is more to evolution than adaptation. Evolving systems are often poorly adapted to their environments for a host of reasons, including genetic drift, phylogenetic,

developmental, and genetic constraints, and more, all of which have counterparts in non-genetic evolutionary processes. When related to literature, a hypothesis emanating from this position might be “literature is a form of play in humans, and adult play exists not as an adaptation in its own right but as part of selection for juvenile characters in general (neotony). Neotonous behaviors such as play got dragged along with neotonous morphological characters that enabled us to have big heads and stand upright.”

Here are the social constructivist positions.

S1. Individuals and societies have enormous flexibility in what they can become, which is largely unconstrained by human biology. This flexibility is reflected in the diversity of behaviors that we observe within and among societies around the world and throughout history. People have almost no instincts and obtain their behaviors through learning and cultural transmission. Current inequities that are often justified as part of human nature, therefore inevitable, are nothing of the sort and usually reflect the efforts of powerful elements of society to dominate less powerful elements. When related to literature, a typical hypothesis emanating from this position is “The association of witchcraft with females, including the representation of witches in literature, is an effort to limit the social role of females to that of the good wife.”

S2. Individuals and societies have such enormous flexibility that anything—absolutely anything—goes. For example, all possible combinations of sex roles can exist and have been observed in societies around the world. Words for categories that seem weird to us, such as “red hats worn on the same day that broccoli is eaten” or “second cousins who commit unspeakable acts with barnyard animals”, can be found in other cultures, just as our words and categories appear weird to them. When related to literature, it is difficult to provide a hypothesis emanating from this position, precisely because anything goes.

Positions S1 and S2 agree about flexibility but disagree about whether it leads to sensible vs. nonsensical outcomes. Critics of social constructivism often portray the S2 version but I think that a more sympathetic reading is closer to S1. Social constructivists are first and foremost trying to imagine and implement a better world. What they imagine may strike some as naively optimistic or wrongheaded, but it is perfectly sensible, even in biological terms—the end of oppression, equality, respect, basic necessities for all, and so on. When social constructivists say that anything goes, it is usually in the context of saying that their desired outcome is possible. This is the form of social constructivism that I will defend, and indeed the only form that I think is worth defending. Who would want to defend a view in which absolutely nothing winnows the functional from the dysfunctional?

Our question therefore becomes, what is the potential for incorporating the social constructivist position S1 into the three evolutionary positions E1, E2 and E3? Ever since the publication of Sociobiology in 1975, critics have taken refuge primarily in E3. The reason that first sociobiology and then evolutionary psychology are fatally flawed, say the critics, is because they rely excessively on adaptationism. I regard this as an unfortunate wrong turn on the part of the critics. As an evolutionary biologist, I am

perfectly comfortable with the fact that there is more to evolution than adaptation. It is definitely the middle ground that needs exploring as far as the general subject of evolution is concerned. However, the non-adaptive side of evolution provides little comfort for S1, the social constructivist position that we are trying to place on an evolutionary foundation. Since S1 involves the achievement of goals that are desirable, therefore adaptive at least in the everyday sense of the word, biologically nonadaptive processes can only accomplish these goals as a happy coincidence, by accident so to speak. Before we rely excessively on a happy accident argument, let us see if a stronger foundation can be found in E1 and E2.

It might surprise some readers to learn that E1, the position most closely associated with sociobiology and evolutionary psychology, provides substantial support for S1, even before we proceed to E2. The key concept that provides a link between E1 and S1 is *behavioral flexibility*, also called *phenotypic plasticity*. No organism is so simple that it is instructed by its genes to “do x”. Even bacteria and protozoa are genetically endowed with a set of if-then rules of the form “do x in situation 1”, “do y in situation 2” and so on. These rules enable organisms to do the right thing at the right time, not only behaviorally but physiologically and morphologically. The literature on non-humans is full of wonderful examples of caterpillars that look like twigs in spring and leaves in summer, fish that grow streamlined bodies in the absence of predators but flattened bodies in their presence to exceed the gape of their jaws, frog eggs designed to hatch prematurely at the approach of a snake, salamanders that morph into big-jawed cannibals when food becomes short, and on and on. In all of these cases, information from the environment is combined with a set of predetermined if-then rules to determine the structure and behavior of the organism, much as your tax-preparation software branches off in different directions depending upon the information that it prompts you for.

This kind of adaptive behavioral flexibility provides an intriguing twist to the concept of genetic determinism. Let’s assume for the moment that we are driven by our genes to obey the following set of if-then rules.

<u>In this situation ...</u>	<u>...behave this way</u>
A	A’
B	B’
C	C’
Etc.	Etc.

Each behavior is adaptive for its respective situation and maladaptive for the other situations. For these if-then rules to evolve, all of the situations must exist in the overall ancestral environment. For example, birds that evolve in environments where mammalian predators may or may not be present have evolved to modify their behavior accordingly. In contrast, birds that evolve in environments where mammalian predators are always absent do not behave appropriately when the first ones appear. The first sailors to set foot on the Galapagos islands were surprised when the birds acted as if they were trees rather

than predators. To pick an example more relevant to humans, we might be psychologically adapted to live in groups that vary in size from 10 to 1000 but genetically unprepared for the mega-groups of modern life.

As surprising as it might seem, the genetic determinism of if-then rules provides at least a partial foundation for the social constructivist position S1. Suppose that we regard behavior C' in the above list as socially desirable. We will never achieve behavior C' in situations A and B, but behavior C' will be inevitable if we can implement situation C. The key to achieving the desired social outcome is therefore to change the *situation*, an environmental intervention more reminiscent of social constructivism than genetic determinism as it is usually imagined.

My favorite example of this important concept is Wilson and Daly's (1997) study of risk-taking in men and age of first reproduction in women in the city of Chicago. Unlike most cities, whose neighborhoods are subject to a rapid turnover of residents, Chicago neighborhoods tend to be demographically stable. They also vary greatly in their quality of life, which is reflected in life expectancies that range from the mid-fifties for the worst neighborhoods to the mid-seventies for the best neighborhoods. Wilson and Daly showed that violent risk-taking in men and age of first reproduction in women correlate very strongly with life-expectancy. Of course, both of these are perceived as social problems. Politicians talk endlessly about reducing violence and teen-age pregnancies, especially in our inner cities. However, when women from the worst neighborhoods were asked why they had children so young, they gave an answer that can only invoke sympathy: They said that they wanted their mothers to see their grandchildren and in turn wanted to see their own grandchildren. They used the term "weathering" to refer to the aging process that they observed in themselves and their loved ones all around them. If everyone around you was weathering and dying at an average age of 55, wouldn't *you* want to start having children early (as a female) or take great risks to obtain the status and resources required to reproduce (as a male)?

We can portray this example in terms of hypothetical genetically determined if-then rules as follows.

<u>In this situation ...</u>	<u>...behave this way</u>
Low life expectancy	Reproduce early (women) Take high risks (men) Heavily discount the future (both)
High life expectancy	Reproduce later (women) Take fewer risks (men) Long-range planning (both)

The female and male strategies both fall under the more general categories of discounting the future when life expectancies are low (because there might not be a

future), as opposed to foregoing short-term benefits in favor of future benefits when life expectancies are high. If we provisionally accept these if-then rules as the dictates of our genes, then we can derive a straightforward prediction and plan of action: to solve the problems of early pregnancy and violence in our worst neighborhoods, increase life expectancy and otherwise provide a stable social environment with a future to plan for. Of course, this is the kind of solution that a self-described social constructivist and critic of biological determinism might advise.

It is interesting that genetic determinism contributes positively to social constructivism in this hypothetical scenario, at least in some respects. For one thing, it leads to a clear plan of action, in contrast to the “anything goes” version of social constructivism. To achieve any given behavior in the right column, simply create the corresponding situation in the left column. For another thing, the “anything goes” version of social constructivism can lead to scary outcomes, such as brainwashing people in our worst neighborhoods to be docile and childless. As many critics of social constructivism have observed, it is naïve and illogical to think that “anything goes” leads consistently to “socially desirable”. The idea of an evolved human nature that fights tenaciously for adaptive outcomes provides a firmer foundation for the optimistic brand of social constructivism (S1) than the “anything goes” portrayal of human nature.

I am not the first person to point out that adaptive behavioral flexibility turns the implications of genetic determinism topsy-turvy. Numerous self-described sociobiologists and evolutionary psychologists have made the same points and justly feel misunderstood by their social constructivist critics who continue to associate evolution with inflexibility. Here, then, is an important meeting ground in which social constructivism can be placed on an evolutionary foundation. However, I will argue that it does not go far enough. The evolutionary position that I have designated E2 provides even more scope for social constructivism,

Innate psychology and non-genetic evolutionary processes

“Learning” and “culture” have always been the alternatives to “evolution” for those who reject evolutionary approaches to human behavior. However, learning and cultural change are themselves evolutionary in the sense that alternative behaviors are created and selected according to certain criteria. They are “blind variation and selective retention” processes, as Campbell put it. What separates learning and culture from genetic evolution is not their evolutionary character but their speed. Learning and cultural evolution adapt organisms to their environment quickly, while genetic evolution is so slow that its products are essentially fixed over the time scales that matter most in contemporary human affairs. Another potential difference involves the criteria for selection. Perhaps non-genetic evolutionary processes favor the same behaviors that would evolve by genetic evolution, given enough time, but perhaps they favor a different set of behaviors.

For much of the 20th century, learning and cultural evolution were invoked so heavily to explain human behavior that genetic evolution seemed irrelevant. If people can

be made to do anything with the appropriate reinforcement and enculturation, who cares what happened during the stone age? Long before sociobiology and evolutionary psychology made the scene, cognitive psychologists were dismantling the notion of the blank slate by revealing the enormously complicated circuitry that was required to perform such “simple” acts as seeing, hearing, and remembering. It went without saying that this circuitry was largely innate and a product of genetic evolution. However, no cognitive psychologist to my knowledge has interpreted this kind of innateness as denying the existence of non-genetic evolutionary processes.

The cognitive revolution in psychology tended to focus on basic faculties such as vision, hearing, memory, language, and so on. These traits (with the exception of language) are obviously required for survival and reproduction, but what about other traits such as mating, foraging, cooperation, aggression, and migration? According to evolutionary psychologists such as Leda Cosmides and John Tooby, these traits are like vision in their requirement for an elaborate innate circuitry. Just as different circuits are required for vision and hearing (although they must also be integrated with each other) different circuits are required for the evaluation of long-term mates, the evaluation of short term mates, response to infidelity, the detection of cheaters in social exchange, and so on. The list of specialized cognitive adaptations is not endless but runs into the hundreds and thousands, covering all of the important behaviors that helped us to survive and reproduce in ancestral environments.

This is a startlingly different conception of the mind that will be important even if only partially correct. In its extreme form, however, it has led to the denial of learning and culture as open-ended evolutionary processes in their own right. If this were true, then modern evolutionary theory would provide justification for E1 but not E2 and the only evolutionary foundation for social constructivism would be the innate if-then rules described in the previous section.

The argument upon which the denial is based goes like this: All cognitive adaptations must be specialized to be smart. The first artificial intelligence researchers naively thought that they could build smart general-purpose learning machines, but they soon discovered that the only way to make a machine smart is to make it specialized for a particular task. Chess playing computers are smart at playing chess but can't do anything else. Similarly, your tax preparation software can calculate your taxes only if you give it exactly the right information, which it is designed to process in exactly the right way. The world is so full of potential information that can be processed in so many ways, that all cognitive adaptations must be like your tax preparation software in its specialized perception and processing of information.

To see why this argument fails, consider the mammalian immune system. Just like the mind, it can be regarded as a collection of genetically evolved mechanisms for helping us to survive and reproduce in our ancestral environment. The number and sophistication of mechanisms that comprise the immune system are mind-boggling when understood in detail. Nevertheless, the centerpiece of the immune system is an open-ended process of blind variation and selective retention. Antibodies are produced at

random and those that successfully fight invading disease organisms are selected. Diseases are so numerous and evolve so fast with their short generation times that the only way to fight them is with another evolutionary process.

The immune system shows that genetic evolution and elaborate innateness do not invariably lead to the kind of modularity that excludes open-ended processes. Indeed, when the pace of environmental change becomes too fast and the number of challenges too great, genetically fixed if-then rules break down and must be supplemented by rapid non-genetic evolutionary processes that generate and select new solutions to current problems. As for the immune system, so also for psychological and cultural processes.

These observations are elementary but profound in their implications for placing social constructivism on an evolutionary foundation. They mean that *whatever the virtues of the evolutionary position outlined in E1, they do not exclude the evolutionary position outlined in E2*. Put another way, all metaphors make a connection between two things that are valid in some respects but not others. My love is a rose even though she is not red and thorny. The blank slate metaphor might be a total failure as a mechanistic conception of the mind but still be perfectly valid with respect to the open-ended nature of individual and societal change.

It would be a mistake to take this reasoning too far. Our eating behaviors provide fine examples of evolved predispositions that were adaptive in ancestral environments, have become maladaptive in modern environments, and are difficult to change. Religions encourage and often achieve altruism at a scale that never existed in ancestral environments, but they don't say that it's easy. There is a difference between *potential* for individual and societal change and *equi-potential*. If by blank slate we mean "anything can be written with equal ease", then that part of the metaphor is false.

My argument for placing social constructivism on an evolutionary foundation can be summarized as follows: Those who feel strongly about the potential for individual and societal change need not feel threatened by evolutionary theory. Even the elaborate innateness of the immune system does not exclude and indeed makes possible the potential for open-ended change, leading to new solutions to current problems. However, fulfilling the valid aspects of the blank slate metaphor requires abandoning the invalid aspects. Potential does not mean equi-potential. Realizing potential can be facilitated by a detailed understanding of the mechanisms of genetic evolution and non-genetic evolutionary processes both built by and partially constrained by genetic evolution. In short, the way forward for social constructivism is to become sophisticated about evolution, not to deny its relevance to human affairs.

Evolutionary biologists interested in human behavior, in turn, must realize that there is more to human evolution than genetic adaptation to ancestral environments. The position that I have outlined as E1 does not exclude the position I have outlined as E2, however valid in other respects. Part of our genetic endowment is the capacity for rapid individual and societal adaptation to current environments, which is the heart of social constructivism.

Evolutionary Social Constructivism and Literature

Years ago I asked Napoleon Chagnon, one of the first anthropologists to call himself a sociobiologist, what he found so insightful about evolution. “Because it tells anthropologists to study reproduction instead of pottery!” he snapped back. The simplicity of Chagnon’s answer took me aback. He was saying that traditional anthropologists were paying attention to the wrong things, or at least not the most important things. The study of humans should be centered upon survival and reproduction—and indeed survival only to the extent that it leads to reproduction—just like any other species. We might be playing the reproduction game differently than other species in some respects, but we are playing the same game.

As for anthropology, so also for psychology. David Buss’s textbook Evolutionary Psychology: the new science of the mind has section headings unlike any other psychology textbook: “problems of survival”, “challenges of sex and mating”, “challenges of parenting and kinship”, and “problems of group living”. This organization reflects the fact that we evolved to do certain things well and that the study of psychology should be organized around those things. As the evolutionary biologist George Williams is often quoted as saying: “Is it not reasonable that our understanding of the human mind would be aided greatly by knowing the purpose for which it was designed?”.

In many respects, the study of literature from an evolutionary perspective needs to begin with the same refocusing of attention that is already taking place in anthropology and psychology. As Daniel Nettle puts it in his contribution to this volume, if we ask what themes would most interest a nonhuman primate, those are the themes that are most prominently featured in Shakespeare and indeed all literature. I once tested this proposition for myself during a trip to Japan by asking my hosts to provide me with a list of classic Japanese novels, short stories and plays, which I purchased in English translation and read during the course of my trip. Even though Japanese culture is often said to be different than western culture, especially during the times when some of the older works on my list were written, the evolutionary themes leapt off the pages and would have interested our nonhuman primate as much as Shakespeare.

If this volume succeeds in refocusing attention for the study of literature, on a par with anthropology and psychology, then it will have accomplished an important task. However, it will not have gone far enough. Stories do more than reflect the ancient concerns of our species, which we hold largely in common with other species. Narratives play an integral role in the nongenetic evolutionary processes outlined in E2 and perhaps even the innate flexibility outlined in E1. Unless we appreciate the importance of narratives in adapting us to our current environments, we will not have a fully developed genre of evolutionary literary studies.

The gene-like nature of stories

Genes contain the information about adaptations that have been hard-won by the process of natural selection. Genes are also designed to transmit the information with high fidelity across generations. If non-genetic evolutionary processes exist, the information from those processes must also exist in some form that can be transmitted with high fidelity. Stories have these gene-like properties.

Before I explore the meaning of this statement in general terms, some examples will help to ground our intuition:

- 1) Jerome Bruner is one of the fathers of the cognitive psychology revolution that preceded evolutionary psychology. His latest book, entitled Making stories: law, literature, life, is an exploration of the importance of narrative in both the personal and cultural construction of meaning. Some sample quotes: “So why do we want, seek, even find renewal in these unhinging subjunctivized worlds of fiction? Our brain has as many connections among its neurons as there are stars in the Milky Way; it lives and grows by being in dilemmas: we fall asleep when there is not enough to keep those neurons at work, fail to develop our powers (p 51).” “I want to begin by proposing boldly that, in effect, there is no such thing as an intuitively obvious and essential self to know, one that just sits there ready to be portrayed in words. Rather, we constantly construct and reconstruct our selves to meet the needs of the situations we encounter, and we do so with the guidance of our memories of the past and our hopes and fears for the future. Telling oneself about oneself is like making up a story about who and what we are, what’s happened, and why we’re doing what we’re doing (p 64).” “So automatic and swift is this process of constructing reality that we are often blind to it—and rediscover it with a cry of ‘postmodern rubbish!’ (p9)”
- 2) In his book entitled Love is a Story, psychologist Robert Sternberg summarizes his research on the importance of narratives in human relationships. How we behave toward our loved ones depends upon whether we regard love as a fantasy story, a business story, a collector story, a horror story, a pornography story, and so on (26 types of stories are discussed). Our stories and their compatibility with the stories of our partners have a large influence on the quality and length of our relationships. A sample quote: “But a clean separation of fact from fiction simply isn’t possible in the context of personal relationships, because we shape the facts of a relationship to conform to our personal fictions. In many ways, we are a composite of our stories. As Immanuel Kant pointed out in The Critique of Pure Reason, if there is an objective reality, it is unknowable. All we can know is the reality we construct. That reality takes the form of a story (p. 5).”
- 3) In his book Opening up, psychologist James Pennebaker summarizes his research on the amazing health effects of keeping a diary. In experiments that have been replicated across age, gender, culture, and social class, writing about important personal experiences in an emotional way for as little as fifteen minutes over the course of three days improves mental and physical health in ways that can be

measured objectively, such as college grades and immune function. A sample quote from one of his papers (Pennebaker and Seagal 1999): “The guiding assumption of the present work is that the act of constructing stories is a natural human process that helps individuals to understand their experiences and themselves. This process allows one to organize and remember events in a coherent fashion while integrating thoughts and feelings. In essence, this gives individuals a sense of predictability and control over their lives. Once an experience has structure and meaning, it would follow that the emotional effects of that experience are more manageable. Constructing stories facilitates a sense of resolution, which results in less rumination and eventually allows disturbing experiences to subside gradually from conscious thought. Painful events that are not structured into a narrative format may contribute to the continued experience of negative thoughts and feelings. Indeed, one of the most prevalent reasons why people begin therapy is because they report suffering from emotional distress...Disclosure is unequivocally at the core of therapy. Psychotherapy usually involves putting together a story that will explain and organize major life events causing distress (p1243).”

- 4) In his book Strangers to ourselves: discovering the adaptive subconscious, psychologist Timothy Wilson summarizes a large body of research showing that people have very little conscious awareness of the psychological mechanisms that cause them to behave as they do. Attempts at introspection not only fail but can actually interfere with mechanisms that are designed to operate subconsciously. Conscious understanding of ourselves must be obtained in the same way that we attempt to understand others; by forming hypotheses (a kind of story) and testing them against experience. The best way to change our behavior is to imagine the kind of person we would like to be and then try to become that person.
- 5) In his book The Symbolic Species, neurobiologist and evolutionary biologist Terrence Deacon argues that we are unique among all species in our capacity for symbolic thought. According to Deacon, the rudiments of symbolic thought do not require a large brain or even a different brain than possessed by our primate ancestors. In fact, it is possible to teach a chimpanzee or bonobo to think symbolically, more like us than their own kind. The problem is that it requires an arduous training process that has no counterpart in nature. Moreover, symbolic thought interferes with more basic forms of associative learning that are adaptive in natural environments. Symbolic thought is like a lofty peak in an adaptive landscape that can be climbed only by first crossing a valley of low fitness. What made humans unique was a natural environmental context that made symbolic thought adaptive in its initial stages, allowing us, and us alone, to cross over to the new adaptive peak. Symbolic thought is above all a system for the generation and selection of mental representations, allowing a form of virtual evolution to take place inside the head.
- 6) In their article entitled “Evolutionary Psychology and the Emotions”, evolutionary psychologists Leda Cosmides and John Tooby themselves stress the importance of narrative in their conception of the modular mind: “Recreating cues through imagery in a decoupled mode triggers the same emotion programs (minus their behavioral

manifestations), and allows the planning function to evaluate imagined situations by using the same circuits that evaluate real situations. This allows alternative courses of actions to be evaluated in a way similar to the way in which experienced situations are evaluated. In other words, image-based representations may serve to unlock, for the purposes of planning, the same evolved mechanisms that are triggered by an actual encounter with a situation displaying the imagined perceptual and situational cues (p 111).”

- 7) People make up their own stories but they also rely upon stories that come from elsewhere. In modern times stories can be downloaded onto external storage devices such as books and computers, but in ancient times all stories had to be stored in heads and passed from head to head. In his book Orality and Literacy, literary scholar Walter Ong shows that the demands of storage and transmission in pre-literate societies were so great that they constrained the very nature of human thought. People from oral societies think largely in terms of proverbs that provide guides to action. Discourse consists largely of reciting the proverbs deemed appropriate for given situations. Proverbs are intriguingly modular and provide a system of if-then rules, just as the genetically evolved mind is portrayed in E1. However, proverbs are not innate (however much they require innate mechanisms, as with antibody evolution), but are generated and selected by non-genetic evolutionary processes. We might think that the proverbs of Kahlil Gibran reflect his own poetic genius, but according to Ong, everyone thought and talked that way in his largely oral culture of Lebanon. If the proverbs seem like polished gems, the polishing was accomplished by multiple minds over multiple generations. Moreover, with the advent of writing, our ability to download stories enabled us to use our minds in ways that were impossible throughout our entire evolutionary history, and we were not slow to capitalize on the new opportunities. When the great Russian psychologist Luria interviewed illiterate peasants, their inability to solve the simplest abstract reasoning problems would have classified them as retarded, but this was simply because they didn't have the luxury to indulge in such idle mental operations in their everyday lives. The revolution in human thought that took place during the time of the Greeks was exactly that; a revolution brought about by a cultural innovation (writing), forever changing the way we use our minds.
- 8) Psychologist Richard Nisbett is familiar and accepting of the position outlined in E1, but also appreciates the importance of non-genetic evolutionary processes resulting in profound cultural differences, for example between regions of the United States with respect to violence and between Asian and Western patterns of thought. Nisbett ends one of his co-authored articles (Nisbett, Choi, Peng, and Norenzayan 2000) with the following reflection on how his own mind has changed over the course of his career: “Almost two decades ago, the senior author wrote a book with Lee Ross entitled, modestly, Human Inference. Roy D’Andrade, a distinguished cognitive anthropologist, read the book and pronounced it a “good ethnography.” The author was shocked and dismayed. But we now wholeheartedly agree with D’Andrade’s contention about the limits of research conducted in a single culture. Psychologists

who choose not to do cross-cultural psychology may have chosen to be ethnographers instead.”

- 9) The intensely social nature of human thought, especially in pre-literate times when the equivalent of a library was a group of people willing to talk to you, has bound human groups into corporate units throughout our evolutionary history. Conflicts of interest exist within all groups but the degree to which groups succeed and fail as units also needs to be appreciated. Here again, narrative plays a critical role. As Jerome Bruner puts it: “I doubt that such collective life would be possible were it not for our human capacity to organize and communicate experience in narrative form. For it is the conventionalization of narrative that converts individual experience into collective coin which can be circulated, as it were, on a base wider than a merely interpersonal one. Being able to read another’s mind need depend no longer on sharing some narrow ecological or interpersonal niche but, rather, on a common fund of myth, folktale, “common sense.” And given that folk narrative, like narrative generally, like culture itself, is organized around the dialectic of expectation-supporting norms and possibility-evoking transgressions, it is no surprise that story is the coin and currency of culture (p 16).”

- 10) Religious stories are taken more seriously than any others. In my own book Darwin’s Cathedral: evolution, religion, and the nature of society, I show that religions around the world and throughout history have bound human groups into corporate units. The very word religion in our language is derived from the Latin religio, which means “to unite or bind together.” The genetically evolved mind is completely unprepared for social life in groups larger than a few hundred or at most a few thousand individuals. Larger groups such as the Hebrew nation were clearly adaptive in their time but existed only by virtue of cultural mechanisms that evolved by non-genetic evolutionary processes and which often took the form of narratives that provide guides for action. A particularly striking example is offered by religious scholar Elaine Pagel’s analysis of early Christianity. In her book The origin of Satan, she shows that the four Gospels chosen to comprise the New Testament by the orthodox church in the late second century, compared to other Gospels that were branded as “an abyss of madness, and blasphemy against Christ”, served as particularly good blueprints for “a practical design of Christian communities (p 75).” Moreover, the differences between the four Gospels can be interpreted as alterations in the sacred story adapting particular early Christian communities to their local social environments. Even though the sacred stories in the New Testament became fixed in the second century, their selective use and interpretation make them endlessly adaptable to modern conditions, as in recent efforts to create an environmentally responsible “green” Christianity, perhaps for the first time in its history. In this respect, sacred religious stories are like the proverbs of oral cultures.

- 11) Modern-day works of literature have the same potent effects on human action as religious stories, at both the personal and cultural levels. In his memoir Judgement Day, Nathaniel Branden recalls encountering the novels of Ayn Rand, which were so compelling that he read them again and again. Their glorification of individuals

breaking the bonds of conventional society became what he described as a “shield” and a “fortress” that enabled him to resist his own stultifying social environment. He ultimately sought out Rand and became her disciple and lover. During their first meeting he described her books as a “stylized universe”, a phase that delighted her. Although Rand was an avowed atheist, her books have the same powerful organizing effect on behavior as religion and continue to be purchased and discussed in Ayn Rand clubs and e-mail groups around the world. According to Bruner, Uncle Tom’s Cabin played as great a role in precipitating the Civil war and the Harlem Renaissance played as great a role in promoting desegregation as any legislative or court action, by humanizing the plight of those who previously had been dehumanized. As Bruner puts it, “great fiction is subversive in spirit, not pedagogical (11).”

- 12) In their article entitled “Evolutionary Psychology: A Primer”, Leda Cosmides and John Tooby quote with approval Einstein’s statement “It is the theory that decides what we can observe” to emphasize the novelty of their perspective against the background of the so-called “Standard Social Science Model”. The idea behind this statement is that a scientific theory, like any other narrative, organizes perception, making certain things obvious, others worthy of attention, and still others invisible. A radical new theory, such as Einstein’s theory of relativity or evolutionary psychology (in the opinion of Cosmides and Tooby), has such a transformative effect on perception that it literally decides what we can observe. I agree with this statement but I think it leads to a different conclusion than what Cosmides and Tooby had in mind. The position that I have described as E1 does indeed change our perception and reveals many new possibilities that were invisible before, as I have tried to stress throughout this essay. But alas, it also makes other possibilities seem to vanish that were deservedly obvious before. If E1 is interpreted as a denial of E2, that is merely an artifact of its own limited vision.

These examples are not the rantings of naïve blank slatists but include some of the most distinguished psychologists and social scientists, writing on the basis of extensive research. Their findings show that people are more than tax preparation software writ large, responding to specific environmental stimuli with pre-evolved behavioral responses. In addition, people embark upon evolutionary voyages of their own, individually and collectively, arriving at new solutions to modern problems. Furthermore, these evolutionary voyages rely fundamentally upon stories; in the creation of new and untested guides to action, the retention of proven guides to action, and the all-important transmission of guides to action from one person to another. In short, stories often play the role of genes in non-genetic evolutionary processes.

What this means for the study of literature is that refocusing attention on the problems of survival and reproduction in our ancestral environment is not enough. A genre of evolutionary literary studies must also appreciate the importance of stories in adaptation to current environments. Giving stories gene-like status endows them with the potency and centrality that they have always enjoyed within social constructivist perspectives.

Welcome to the middle ground

I began this essay by saying that it is not an exercise in idle diplomacy but a serious attempt to find the common ground between evolutionary theory and social constructivism. The heart of social constructivism is an optimistic belief that people and societies can become better in the future than in the present or past. This belief is not threatened by evolutionary theory. Indeed, evolution is all about change and only by the strangest of secondary assumptions can it be interpreted as implying an incapacity for change. In particular, if we restrict evolution to genetic evolution and ignore the concept of adaptive behavioral flexibility, then evolution indeed implies an incapacity for change over the time scales most relevant to contemporary human affairs. However, no sophisticated evolutionary biologist would accept both of these restrictive assumptions. The adaptive behavioral flexibility that already occupies center stage in sociobiology and evolutionary psychology provides some scope for the optimistic spirit of social constructivism. Non-genetic evolutionary processes provide even more scope.

Not only should social constructivists feel unthreatened by evolutionary theory, but they should actively learn it and use it to achieve their objectives. The blank slate metaphor and the concept of “learning” and “culture” as generic alternatives to “evolution” may crudely capture the spirit of social constructivism, but they fail in every other respect. Evolution is a complicated process and the factors that constrain adaptation (E3) lurk around every corner. Understanding E2 in conjunction with E1 is even more complicated. After we decide that evolutionary theory is a vehicle that can take us where we want to go, we need to learn how to drive it. The only way forward for social constructivism in a practical sense is to master and advance our knowledge of evolution, the only known process that can create islands of function out of the sea of entropy.

As for evolutionists, it takes an insider to appreciate the diversity of opinion and lack of integration gathered under that term, ranging from nearly exclusive focus on one of the three positions that I have outlined to a few brave souls who attempt to occupy the middle ground. Perhaps we can understand and sympathize with an excessive focus on E1 as a reaction to its denial in psychology and the social sciences during most of the twentieth century. However, those of us who use the term evolutionary psychology broadly think of it not as a counterweight but as a framework for explaining all aspects of psychology from an evolutionary perspective. Evolutionary psychology in its current form therefore must take back some of what has been rejected as part of the “standard social science model”, in particular open-ended, non-genetic evolutionary processes that adapt individuals and groups to their current environments.

Einstein’s quote “It is the theory that decides what we can observe” might seem to imply that every theoretical perspective is like a mask with narrow slits for eyes, providing only a partial view of the world. Perhaps this is true in some sense, but I don’t think it explains the kind of narrowness that has existed in the past and need not exist in the future for this subject. Clearly, the middle ground that we have been discussing has remained unoccupied because of perceived implications, not just intellectual difficulty. Intellectually it is fully possible to achieve a theory of evolution that acknowledges the

importance of all three positions and their relationships with each other, and that serves as a resource for individual and societal change. Perhaps before long we will be able to say that the evolution wars are over and the task of reconstruction has begun.

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